

Warm-up

Solve

$$\sqrt[3]{x} = 2$$
$$\left(x^{\frac{1}{3}}\right)^3 = 2^3$$
$$x = 8$$

### 7-5 Exponential and Log Equations

Solve

$$4 + x^{\frac{1}{2}} = 31$$

$$\begin{array}{r} -4 \quad -4 \\ \hline \left(x^{\frac{1}{2}}\right)^2 = (27)^2 \end{array}$$
$$x = 729$$

Ex 2

$$\frac{3y^{4/3}}{3} = \frac{768}{3}$$
$$\left(y^{4/3}\right)^{3/4} = \left(256\right)^{3/4}$$
$$256 \div 4 = 64$$
$$y = 64$$

Ex 3

$$\sqrt{7x}$$
$$(7x)^{1/2} - 4 = 0$$
$$(7x)^{1/2} = 4$$
$$(7x)^{1/2} = 4^2$$
$$7x = \frac{16}{7}$$
$$x = \frac{16}{49}$$

Ex 4

$7^x = 20$

$x$  is in the exponent  
Take log of each side

$$(3x) \log 7 = \log 20$$
$$\frac{(3x) \log 7}{\log 7} = \frac{\log 20}{\log 7}$$
$$3x = 1.539$$
$$x = .513$$

Ex 5

$$6^{2x+1} = 21$$

$$\frac{(2x+1) \log 6}{\log 6} = \frac{\log 21}{\log 6}$$
$$2x+1 = 1.699$$
$$\frac{2x}{2} = \frac{.699}{2}$$
$$x = .3495$$

Ex 6

$$\begin{array}{r} 3^{x+4} + 35 = 101 \\ -35 \quad -35 \\ \hline x+4 \quad (1.5 \quad 3) = \frac{1.5 \quad 66}{1.5 \quad 3} \end{array}$$

$x = -.186$

Things I learned today

$$\begin{array}{l} + 3^x \rightarrow 1.5 \\ + \left(x^{\frac{4}{3}}\right)^{\frac{5}{4}} \end{array}$$

2-32E

HW - 334 (~~1-3, 1-4, 1-5~~)